This is a digital copy of a book that was preserved for generations on library shelves before it was carefully scanned by Google as part of a project to make the world's books discoverable online.

It has survived long enough for the copyright to expire and the book to enter the public domain. A public domain book is one that was never subject to copyright or whose legal copyright term has expired. Whether a book is in the public domain may vary country to country. Public domain books are our gateways to the past, representing a wealth of history, culture and knowledge that's often difficult to discover.

Marks, notations and other marginalia present in the original volume will appear in this file - a reminder of this book's long journey from the publisher to a library and finally to you.

Usage guidelines

Google is proud to partner with libraries to digitize public domain materials and make them widely accessible. Public domain books belong to the public and we are merely their custodians. Nevertheless, this work is expensive, so in order to keep providing this resource, we have taken steps to prevent abuse by commercial parties, including placing technical restrictions on automated querying.

We also ask that you:

+ *Make non-commercial use of the files* We designed Google Book Search for use by individuals, and we request that you use these files for personal, non-commercial purposes.

+ *Refrain from automated querying* Do not send automated queries of any sort to Google's system: If you are conducting research on machine translation, optical character recognition or other areas where access to a large amount of text is helpful, please contact us. We encourage the use of public domain materials for these purposes and may be able to help.

+ *Maintain attribution* The Google "watermark" you see on each file is essential for informing people about this project and helping them find additional materials through Google Book Search. Please do not remove it.

+ *Keep it legal* Whatever your use, remember that you are responsible for ensuring that what you are doing is legal. Do not assume that just because we believe a book is in the public domain for users in the United States, that the work is also in the public domain for users in other countries. Whether a book is still in copyright varies from country to country, and we can't offer guidance on whether any specific use of any specific book is allowed. Please do not assume that a book's appearance in Google Book Search means it can be used in any manner anywhere in the world. Copyright infringement liability can be quite severe.

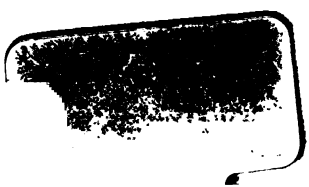
About Google Book Search

Google's mission is to organize the world's information and to make it universally accessible and useful. Google Book Search helps readers discover the world's books while helping authors and publishers reach new audiences. You can search through the full text of this book on the web at `http://books.google.com/`

600001475N

35.

73.



A

COMPLETE SYSTEM

OF

MENTAL ARITHMETIC,

EMBRACING EVERY VARIETY OF COMMERCIAL CALCULATION NECESSARY FOR THE COUNTING-HOUSE AND SHOP.

BY JAMES FERGUSON,
Master of the Borough School, Alnwick.

Alnwick:
PRINTED BY M. SMITH, 39, BONDGATE.

MDCCCXXXV.

73.

PREFACE.

If arts and sciences are to be valued in proportion to their utility and importance, a System of Mental Arithmetic will hold a very high place in the estimation of a commercial public.

Arithmetic, as generally taught in schools, is complicated and too tedious ever to be introduced into the counting-house, or to be pursued by the man of business. Every class of this extensive portion of society has most frequently to calculate the value of goods at the moment, and perhaps at a time, when neither pen, ink, pencil, nor paper is at command, nor time to use them.

In this case, a young man, though educated at one of the first finishing academies for commercial pursuits, would be incapable of making correct calculations, and even the most expert mathematician would, in the hurry of business, be frequently at a loss.

A youth, though only slightly acquainted with the first rules of arithmetic, by a few weeks' instruction, will be able to calculate the value of goods at any stipulated price, with more fa-

and advantage than the most skilful arithmetician by his usual methods, which will be found to be of incalculable service to him, as preparatory to real business.

The person, therefore, who is familiar with this system, will possess a never-failing resource in his own mind, which will prove of more value than the best *Ready Reckoner*.

In the system here laid down, every thing not general in its application has been studiously avoided; and only such rules as are useful in commercial calculations will be found; as the object of this work has been to bring every portion of it to the test of utility.

Alnwick, March 31, 1835.

MENTAL ARITHMETIC.

MENTAL ARITHMETIC is the method of calculating by the mind, without the assistance of either pencil or pen. But in the practice of business, only part of the calculation is sometimes made mentally; and when the operation becomes too intricate, it is finished by the pen.

To find the value of 12 *articles, having the price of* 1 *given.*

RULE.—For every penny in the price, reckon a shilling, adding 3*d* for each farthing, and $1\frac{1}{2}d$ for $\frac{1}{8}$ of a penny.

EXAMPLES.

What cost 12 yards of cloth, at $2s\ 4\frac{1}{2}d$ per yd? $2s\ 4\frac{1}{2}d = 28\frac{1}{2}d$, which, taken as shillings, give $1l\ 8s\ 6d$ *Ans.*

Because 12 articles, at 1*d* each, cost 1*s*.

	£	*s*	*d*		£	*s*	*d*
12 yards, at	0	2	$8\frac{1}{2}$	*Ans.*	1	12	6
12 ———	0	3	$7\frac{3}{4}$	———	2	3	9
12 ———	0	7	$6\frac{3}{4}$	———	4	10	9
12 ———	0	9	$8\frac{1}{2}$	———	5	16	6
12 ———	0	4	$9\frac{1}{4}$	———	2	17	3
12 ———	0	9	$2\frac{3}{4}$	———	5	10	9
12 ———	0	4	$7\frac{1}{8}$	———	2	15	$1\frac{1}{2}$

		£	s	d		£	s	d
12	———	0	2	$9\frac{1}{8}$	*Ans.*			
12	———	0	4	$10\frac{1}{4}$	———			
12	———	0	9	$8\frac{1}{2}$	———			
12	———	0	4	$11\frac{1}{2}$	———			
12	———	0	9	$10\frac{3}{4}$	———			
12	———	0	11	$11\frac{1}{4}$	———			
12	———	0	9	$10\frac{1}{4}$	———			
12	———	0	11	$9\frac{3}{4}$	———			
12	———	0	9	$11\frac{1}{8}$	———			
12	cwt. at	1	19	$6\frac{1}{2}$	———			
12	———	2	16	$2\frac{1}{2}$	———			
12	———	3	12	$6\frac{3}{4}$	———			
12	———	4	19	$2\frac{1}{4}$	———			
12	———	3	4	$7\frac{1}{2}$	———			

When the rate per dozen is given, to find the price of one article.

RULE.—For every shilling in the price, reckon a penny; for 6*d* over, add a halfpenny; for 3*d*, a farthing.

EXAMPLES.

What is the price of 1 lb, at 2*s* 9*d* per dozen?

2*s* 9*d* = $2\frac{3}{4}s$, which taken as pence, give $2\frac{3}{4}d$ *Ans.*

	£	s	d			£	s	d
1 lb. at	0	3	0	per doz.	*Ans.*	0	0	3
1 ———	0	5	3	———	———	0	0	$5\frac{1}{4}$
1 ———	0	7	6	———	———	0	0	$7\frac{1}{2}$
1 ———	0	8	9	———	———	0	0	$8\frac{3}{4}$
1 ———	0	2	3	———	———			
1 ———	0	4	3	———	———			
1 ———	0	6	9	———	———			

Having the price of 1 *given, to find the price of any multiple of* 12*: that is, any number that contains* 12 *without a remainder.*

RULE.—Calculate the price of 12, and multiply the sum by the given multiple.

EXAMPLES.

What is the price of 24 lbs of beef, at $3\frac{3}{4}d$ per pound?

s	*d*	
3	9	price of 12
	2	
7	6	*Ans.*

		s	*d*		£	*s*	*d*
36	yards, at	0	$7\frac{1}{2}$	*Ans.*	1	1	9
48	———	1	$5\frac{1}{2}$	———	3	10	0
60	———	0	$8\frac{3}{4}$	———	2	3	9
108	lbs. at	3	$2\frac{1}{2}$	———	17	6	6
120	———	2	$1\frac{1}{2}$	———	12	15	0
132	———	3	$3\frac{1}{4}$	———	21	11	9
144	———	7	$6\frac{3}{4}$	———	54	9	0
60	———	2	$9\frac{1}{4}$	———			
84	———	4	$11\frac{1}{4}$	———			
120	———	9	$11\frac{3}{4}$	———			
132	———	2	$10\frac{1}{4}$	———			
144	———	7	$6\frac{1}{2}$	———			
36	———	9	$10\frac{2}{4}$	———			
48	———	3	$7\frac{1}{2}$	———			
60	———	3	$10\frac{1}{4}$	———			
72	———	9	$3\frac{1}{2}$	———			
96	———	11	$2\frac{1}{2}$	———			
24	———	10	$9\frac{1}{2}$	———			

		s	d		£	s	d
36	lbs. at	4	$10\frac{1}{2}$	*Ans.*			
48	———	7	$11\frac{3}{4}$	———			
60	———	9	$10\frac{1}{2}$	———			
72	———	2	$11\frac{3}{4}$	———			
132	———	9	$10\frac{1}{2}$	———			

When the quantity is nearly a dozen, or some multiple of a dozen.

RULE.—Calculate the value of the nearest dozen or dozens, and add or subtract the value of the excess or defect.

EXAMPLES.

What is the value of 75 yards, at $8\frac{3}{4}d$ per yd. ?

	£	s	d
6 doz. at $8\frac{3}{4}$ =	2	12	6
3 extra =	0	2	$2\frac{1}{4}$
	2	14	$8\frac{1}{4}$ *Ans.*

What is the price of 11 yards, at $6\frac{1}{4}d$ per yd. ?

s	d	
6	3	price of 12
0	$6\frac{1}{4}$	price of 1
5	$8\frac{3}{4}$	*Ans.*

		s	d		£	s	d
16	yards, at	7	$5\frac{3}{4}$	*Ans.*	5	19	8
17	———	0	$5\frac{3}{4}$	———	0	8	$1\frac{3}{4}$
18	———	7	$7\frac{3}{4}$	———	6	17	$7\frac{1}{2}$
$23\frac{1}{2}$	———	1	$4\frac{1}{2}$	———	1	12	$3\frac{3}{4}$
37	———	0	$7\frac{3}{4}$	———	1	3	$10\frac{3}{4}$
$83\frac{3}{4}$	———	3	$7\frac{3}{4}$	———	15	5	$4\frac{1}{4}$
71	———	0	$3\frac{3}{4}$	———	1	2	$2\frac{1}{4}$

		s	d		£	s	d
95¾	yards at	1	3½	*Ans.*	6	3	6½
101	———	0	8½	———	3	9	5¼
131¾	———	0	7¾	———	4	5	1
25	———	8	2¼	———			
29	———	2	2½	———			
35	———	4	7½	———			
46	———	3	10¼	———			
63	———	2	11½	———			
75	———	8	2½	———			
85	———	2	10¼	———			
98	———	7	6¼	———			
107	———	2	9½	———			
122	———	4	2½	———			

When the quantity is not easily reducible to dozens, as in 57¾, 19½, *&c.*

RULE.—Take the articles as pence, and multiply by the money.

EXAMPLES.

What is the value of 19½ lb, at 10*d* per lb. ?

d		s	d
19½	=	1	7½
		10	
		15	10½ *Ans.*

Because 19½ articles at 1*d* each, = 1*s* 7½*d*.

		s	d		£	s	d
69½	lbs. at	0	8	*Ans.*	2	6	2
45¾	———	0	5	———	0	19	0¾
127½	———	0	2½	———	1	6	6¾
38¼	———	0	4¼	———	0	13	6½
78½	———	0	10½	———	3	8	8¾

		s	d		£	s	d
137	lbs. at	1	2	*Ans.*			
149	———	2	$1\frac{1}{2}$	——			
239	yds. at	1	$3\frac{1}{4}$	——			
400	———	0	$8\frac{1}{2}$	——			
249	———	0	$6\frac{1}{4}$	——			
360	———	0	$8\frac{1}{2}$	——			
249	———	0	$7\frac{1}{4}$	——			
218	———	0	$11\frac{1}{2}$	——			
310	———	0	$9\frac{1}{4}$	——			
410	———	0	$5\frac{1}{2}$	——			
462	———	0	$4\frac{3}{4}$	——			
213	———	0	$11\frac{1}{2}$	——			
119	———	0	$7\frac{1}{2}$	——			
127	———	0	$8\frac{3}{4}$	——			
215	———	0	$3\frac{1}{4}$	——			
320	———	0	$4\frac{3}{4}$	——			

To find the value of any number of grosses, having the price of 1 article given.

RULE.—Find the value of 1 dozen, and take that amount, as the value of another dozen.

EXAMPLES.

What is the value of 1 gross, at $4\frac{1}{2}d$ each?

1 doz. at $4\frac{1}{2}d$ each=4*s* 6*d*, which being taken again, give 54*s*=2*l* 14*s* 0*d*=the value of 1 gross.

		s	d			£	s	d
1 gross, at		0	$2\frac{1}{2}$	each.	*Ans.*	3	12	0
1	———	0	$10\frac{1}{2}$	——	——	6	6	0
1	———	0	$2\frac{3}{4}$	——	——	1	13	0
1	———	0	$4\frac{1}{2}$	——	——	2	11	0
1	———	1	$5\frac{3}{4}$	——	——	10	13	0
2	———	2	4	——	——	33	12	0

		s	*d*			£	*s*	*d*
3	gross at	4	3	each	*Ans.*	91	16	0
1	———	2	2	——	——			
1	———	1	3	——	——			
1	———	3	2	——	——			
1	———	1	$2\frac{1}{2}$	——	——			
1	———	0	$10\frac{1}{2}$	——	——			
1	———	1	$2\frac{1}{4}$	——	——			
1	———	0	$9\frac{1}{4}$	——	——			

To find the value of* 20 *articles, having the price of* 1 *given.

RULE.—For every shilling in the price, reckon a pound, adding 10*s* for 6*d*; 5*s* for 3*d*; 1*s* 8*d* for 1*d*; 10*d* for a halfpenny; 5*d* for a farthing; 1*s* 3*d* for three farthings; and $2\frac{1}{2}d$ for $\frac{1}{8}d$.

EXAMPLES.

What is the price of 20 yards of cloth, at 2*s* $4\frac{1}{2}d$ per yard?

2*s* $4\frac{1}{2}d$, which, taken as pounds, give 2*l* 7*s* 6*d*. Because 20 articles, at 1*s* each, cost £1.

		s	*d*			£	*s*	*d*
20	yards, at	7	6	*Ans.*		7	10	0
20	———	9	6	——		9	10	0
20	———	5	4	——		5	6	8
20	———	7	$3\frac{1}{2}$	——		7	5	10
20	———	9	$2\frac{1}{2}$	——		9	4	2
20	———	7	$4\frac{3}{4}$	——		7	7	11
20	———	4	$2\frac{3}{4}$	——		4	4	7
20	———	10	$1\frac{1}{2}$			10	2	6
20	———	12	$2\frac{1}{4}$	——		12	3	9
20	———	5	$11\frac{1}{2}$	——		5	19	2
20	———	4	$9\frac{1}{2}$	——				

	£	s	d		£	s	d
20 yards, at	0	12	3¼	*Ans.*			
20 ———	0	6	11¼	———			
20 ———	0	7	10¾	———			
20 ———	0	10	7½	———			
20 ———	0	12	9⅜	———			
20 ———	0	14	2½	———			
20 ———	1	12	2½	———			
20 ———	2	7	2¼	———			
20 ———	3	4	1½	———			
20 ———	1	10	2⅛	———			
20 ———	3	4	5¼	———			
20 ———	3	1	4½	———			
20 ———	1	19	3¼	———			

Having the price of 20 *articles given, to find the price of* 1.

RULE.—For every pound in the price reckon a shilling; for 10*s*, add 6*d*; for 5*s*, add 3*d*; for 2*s* 6*d*, add 1½*d*; for 1*s* 3*d*, add ¾*d*; and for 5*d*, add ¼*d*

EXAMPLES.

What is the price of 1 quire of paper, at 2*l* 10*s* per ream.

2*l* 10*s*=2½*l*, which, taken as shillings, give 2*s* 6*d* [*Ans.*

	£	s	d		£	s	d
1 cwt, at	34	15	0	per ton, *Ans.*	1	14	9
1 ———	15	10	0	——— ———	0	15	6
1 ———	25	15	0	——— ———	1	5	9
1 ———	47	17	6	——— ———	2	7	10½
1 quire at	2	10	0	per ream, ———	0	2	6
1 ———	3	15	0	——— ———	0	3	9
1 ———	4	7	6	——— ———	0	4	4½

	£	s	d		£	s	d
1 quire, at	3	10	5	per ream, *Ans.*	0	3	6½
1 ———	2	5	5	——— ———	0	2	3¼
1 cwt, at	49	15	6	per ton, ———			
1 ———	29	10	5	——— ———			
1 ———	20	10	7½	——— ———			
1 ———	19	5	5	——— ———			
1 ———	26	10	5	——— ———			
1 ———	19	15	5	——— ———			
1 ———	12	5	5	——— ———			
1 ———	19	12	6	——— ———			
1 ———	10	11	3	——— ———			
1 ———	12	2	11	——— ———			
1 ———	9	7	6	——— ———			
1 ———	26	5	5	——— ———			
1 ———	39	2	6	——— ———			
1 ———	27	0	5	——— ———			
1 ———	12	1	3	——— ———			

To find the value of any multiple of 20.

RULE.—Calculate the price of 20, and multiply by the multiple.

EXAMPLES.

What is the price of 40 yards, at 3*s* 6½*d* per yard?

£	s	d	
3	10	10	price of 20
		2	
7	1	8	*Ans.*

60 yards, at	3	9½	*Ans.*	11	7	6
80 ———	2	3¼	———	9	1	8
160 ———	5	6	———	44	0	0
180 ———	2	6½	———	22	17	6

	s	*d*		£	*s*	*d*
200 yards, at	8	7½	*Ans.*	86	5	0
220 ———	4	9½	———	52	14	2
40 ———	3	9½	———			
60 ———	2	10½	———			
80 ———	9	10½	———			
100 ———	2	10½	———			
120 ———	3	6½	———			
140 ———	10	2½	———			
160 ———	9	1½	———			
180 ———	10	2½	———			
200 ———	3	7½	———			
220 ———	4	6½	———			
240 ———	3	1½	———			
40 ———	10	2½	———			
60 ———	9	11½	———			
80 ———	11	2½	———			
100 ———	12	1½	———			
120 ———	9	2½	———			
140 ———	10	7½	———			
160 ———	7	5½	———			

To calculate the price of 240 *articles, having the price of* 1 *given.*

RULE.—For every penny in the price, reckon a pound.

Because, 240 articles at 1*d* each = £1.

What is the price of 240lb, at 2*s* 10½*d* per pound.

2*s* 10½*d*=34½*d*, which, taken as pounds=£34 10*s*.

	s	*d*		£	*s*	*d*
240 yards, at	1	3½	*Ans.*	15	15	0
240 ———	7	7½	———	91	15	0

	s	d		£	s	d
240 yards, at	8	9½	*Ans.*	105	10	0
240 ———	9	5¼	———	113	5	0
240 ———	10	2¾	———	122	10	0

When there are pounds in the price, set down the pence of the pounds, and beneath the same set down the pence of the shillings and pence; add both together, and call the sum pounds.

EXAMPLES.

What is the price of 240 yards, at 1*l* 19*s* 8½*d* per yard?

	d
	240
	236½
	476½=£476 10 *Ans.*

	£	s	d		£	s	d
240 cwt, at	1	6	7½	*Ans.*	319	10	0
240 ———	2	4	4¾	———	532	15	0
240 ———	3	7	9¼	———	813	5	0
240 ———	5	13	7¾	———	1363	15	0
240 ———	2	10	6½	———			
240 ———	1	9	2¼	———			
240 ———	3	5	2¾	———			
240 ———	1	12	6½	———			
240 ———	2	6	2¼	———			
240 ———	3	2	3¼	———			
240 ———	2	15	3¼	———			
240 ———	1	17	2½	———			
240 ———	2	5	3¾	———			
240 ———	1	9	10½	———			
240 ———	2	11	2¾	———			

	£	s	d		£	s	d
240 yds. at	1	2	$3\frac{3}{4}$	*Ans.*			
240 ———	2	1	$2\frac{1}{2}$	———			
240 ———	1	12	$3\frac{1}{4}$	———			
240 ———	2	9	$2\frac{1}{2}$	———			
240 ———	1	11	$2\frac{1}{4}$	———			
240 ———	2	5	$10\frac{1}{4}$	———			
240 ———	1	19	$3\frac{1}{2}$	———			
240 ———	1	9	$10\frac{1}{4}$	———			
240 ———	2	12	$11\frac{1}{4}$	———			

When the quantity is any multiple of 240.

RULE.—Calculate as above, and multiply by the multiple.

EXAMPLES.

What is the price of 480 yards, at 1*s* $7\frac{3}{4}d$ per yard ?

£	s	d	
19	15	0	price of 240
		2	
39	10	0	*Ans.*

	s	d		£	s	d
720 yards, at	0	$7\frac{1}{4}$	*Ans.*	21	15	0
960 ———	4	$7\frac{3}{4}$	———	223	0	0
1200 ———	2	$9\frac{1}{2}$	———	167	10	0
1440 ———	13	$9\frac{3}{4}$	———	994	10	0
1680 ———	0	$3\frac{1}{4}$	———	22	5	0
1920 ———	7	$7\frac{3}{4}$	———	734	0	0
2160 ———	4	$4\frac{1}{4}$	———	470	5	0
2400 ———	4	$5\frac{3}{4}$	———	537	10	0

***Having the price of* 1 *given, to find the amount of any number, when the excess or defect is an aliquot part of* 240.**

RULE.—Calculate the price of 240, and add or subtract the excess or defect of 240.

EXAMPLES.

What is the price of 160 yards, at 1*s* $3\frac{3}{4}$*d* per yard?

	£	s	d	
	15	15	0	price of 240
$\frac{1}{3}$ =	5	5	0	price of 80
	10	10	0	*Ans.*

What is the price of 260 lbs at 2*s* $2\frac{3}{4}$*d* per lb.?

	£	s	d	
	26	15	0	price of 240
$\frac{1}{13}$ =	2	4	7	price of 20
	28	19	7	*Ans.*

	s	d		£	s	d
270 yards, at	1	$4\frac{1}{2}$	*Ans.*	18	11	3
280 ———	2	$8\frac{1}{2}$	———	37	18	4
300 ———	1	$4\frac{3}{4}$	———	20	18	9
320 ———	1	$3\frac{3}{4}$	———	21	0	0
360 ———	7	$6\frac{1}{2}$	———	135	15	0
400 ———	1	$6\frac{1}{2}$	———	30	16	8
420 ———	1	$6\frac{1}{2}$	———	28	17	6
440 ———	0	$6\frac{1}{2}$	———	11	18	4
460 ———	1	$0\frac{3}{4}$	———	24	8	9
420 ———	2	$6\frac{1}{4}$	———	52	18	9
480 ———	0	$8\frac{1}{2}$	———	17	0	0
520 ———	0	$10\frac{3}{4}$	———	23	5	10
560 ———	1	$7\frac{3}{4}$	———	46	1	8

	s	d		£	s	d
600 yards, at	1	0½	*Ans.*	31	17	6
640 ———	1	3½	———	42	0	0
660 ———	1	6½	———	50	17	6
680 ———	2	0¾	———	70	2	6
700 ———	0	9½	———	27	14	2
720 ———	7	6¾	———	272	5	0
740 ———	1	6½	———	57	0	10
760 ———	3	9½	———	144	1	8
780 ———	1	1½	———	43	17	6
840 ———	1	6¾	———	65	12	6
1170 ———	3	7¾	———	213	5	7½

By the same method we may calculate for guineas, when the quantity is 252, any aliquot part or multiple of the number, thus,

What is the value of 252 gallons, or 1 tun, at 4*s* 6*d* per gallon?

4*s* 6*d* = 54*d*, which taken as guineas, give 54 guineas = £56 14 0. *Ans.*

	s	d		guin.		£	s	d
126 yards, at	5	8	=	34	=	35	14	0
252 ———	3	11	=	47	=	49	7	0
756 ———	3	2	=	104	=	109	4	0
504 ———	2	9	=	66	=	69	6	0
1008 ———	3	5½	=	166	=	174	6	0

To find the price of* 1 *cwt, or* 112 *articles, having the price of* 1 *given.

RULE.—If the price be an aliquot part of a shilling, take the parts of the cwt, and the quotient will be the answer in *shillings.*

If the price be an aliquot part of a pound, take

the parts of a cwt, and the quotient will be the answer in *pounds*.

If the price be not an aliquot part, for every shilling in the price reckon £5 12, to which add 9*s* 4*d*, multiplied by the pence in the price for the answer. For a farthing add 2*s* 4*d*; for a halfpenny 4*s* 8*d*; and for three farthings add 7*s*.

EXAMPLES.

What is the price of 112 lbs at 7½*d* per lb. ?

s	*d*
9	4
	7½

3	5	4
	4	8

£3 10 0 *Ans.*

Because 112 articles at 1*d* each = 9*s* 4*d*.

What is the value of 112 yards at 4*d* per yard ?

4*d* = ⅓) 112

37 4 = £1 17 4 *Ans.*

What is the price of 112 yards at 6*s* 8*d* per yd ?

6*s* 8*d* = ⅓) 112

£37 6 8 *Ans.*

Otherwise. Multiply the price in farthings by 7, and divide the product by 3, and you have the value of 1 cwt, or 112 articles, in shillings.

EXAMPLE.

What is the price of 112 lbs at $9\frac{1}{2}d$ per lb.?

$9\frac{1}{2}d = 38far.$ $38 \times 7 \div 3 = 88s\ 8d = £4\ 8\ 8$ *Ans*

Because, multiplying by 7, and dividing by 3 is equal to multiplying the farthings in the price by 112, and dividing by 48.

Another method.

RULE.—For every farthing the given price contains, reckon twice as many shillings, and once as many groats, and their sum will be the value.

EXAMPLE.

What is the price of 112 oz. at $7\frac{1}{2}d$ per oz.?

	£	s	d
$7\frac{1}{2}d = 30far.$ taken as shillings $\times 2 =$	£3	0	0
30 groats =	0	10	0
	3	10	0

Because 112 articles at $\frac{1}{4}d$ each $= 2s\ 4d.$

	s	d		£	s	d
112 yards at	0	$8\frac{3}{4}$	*Ans.*	4	1	8
112 ———	0	$9\frac{1}{2}$	———	4	8	8
112 ———	0	$11\frac{1}{4}$	———	5	5	0
112 ———	0	$10\frac{1}{2}$	———	4	18	0
112 ———	2	6	———	14	0	0
112 ———	3	4	———	18	13	4
112 ———	6	8	———	37	6	8
112 ———	1	8	———	9	6	8
4 cwt. at	0	$5\frac{3}{4}$	———	10	14	3
3 ———	0	$4\frac{1}{2}$	———	6	6	0
112 lbs at	0	$8\frac{1}{2}$	———			
112 ———	0	$10\frac{1}{2}$	———			
112 ———	2	$9\frac{1}{2}$	———			

		s	d		£	s	d
112	lbs. at	4	$5\frac{1}{4}$	*Ans.*			
112	——	6	$3\frac{1}{2}$	——			

To find the value of a ton, at any given number of pence per pound.

RULE.—Find the value of a cwt, and take the shillings as pounds, for the answer.

EXAMPLES.

What is the value of a ton, at $4\frac{3}{4}$ *d* per pound? 1 cwt, found as above = 44*s* 4*d* which, being taken as pounds, give £44 6 8.

Because, taking shillings as pounds, is equal to multiplying by 20.

		d			£	s	d
1	ton, at	$8\frac{1}{4}$	per lb.	*Ans.*	77	0	0
1	——	$9\frac{3}{4}$	——	——	91	0	0
1	——	$4\frac{1}{2}$	——	——	42	0	0
1	——	$7\frac{1}{4}$	——	——	67	13	4
1	——	$10\frac{1}{2}$	——	——	98	0	0
1	——	11	——	——	102	13	4
1	——	$6\frac{1}{2}$	——	——			
1	——	$5\frac{3}{4}$	——	——			
1	——	$9\frac{1}{4}$	——	——			
1	——	$10\frac{1}{2}$	——	——			
1	——	$9\frac{3}{4}$	——	——			
1	——	$3\frac{1}{4}$	——	——			
1	——	$7\frac{1}{2}$	——	——			
1	——	$11\frac{1}{4}$	——	——			
1	——	$7\frac{3}{4}$	——	——			
1	——	$4\frac{3}{4}$	——	——			

To find the value of any number of cwts., qrs., and lbs., at 1*d per lb.*

RULE.—Multiply 9*s* 4*d* by the number of cwts, and add 2*s* 4*d* for each qr., and a penny for every pound.

EXAMPLES.

What is the value of 4 cwt 3 qrs 17 lb, at 1*d* per pound?

s	*d*
9	4
	4
1 17	4
7	0
1	5
£2 5	9

Because, 4 cwt 3 qrs at 1*d* per lb are equal to 1 cwt at 4¾*d*; therefore as by rule, 9*s* 4*d* × 4 = £1 17 4 to which add 7*s* + 17*d* (for the 3 qrs. 17 lbs) which give £2 5 9.

c	*qr*	*lb*		*d*		£ *s* *d*
5	2	19	at	1	per lb	*Ans.* 2 12 11
5	2	16	at	1	———	———
6	3	17	at	1	———	———
9	2	15	at	1	———	———

To find the value of 1 *lb. when the price of* 1 *cwt is given.*

RULE.—Multiply the price in shillings by 3, and divide by 7, and you have the value of 1 lb in farthings.

EXAMPLES.

What will 1 lb cost at £5 per cwt?

£5 = 100*s* × 3 ÷ 7 = 42¾ *far.* = 10½*d* = the value of 1lb at £5 per cwt.

Because, multiplying by 3, and dividing by 7, is equal to multiplying by 48, and dividing by 112

	lb	£	*s*		£	*s*	*d*
Value of	1 at	3	0	per cwt	*Ans.* 0	0	$6\frac{1}{4}$
———	1 at	4	12	———	—— 0	0	$9\frac{3}{4}$
———	1 at	6	6	———	—— 0	1	$1\frac{1}{2}$
———	1 at	10	8	———	—— 0	1	$10\frac{1}{4}$
———	1 at	15	10	———	—— 0	2	9
———	1 at	8	18	———	—— 0	1	7

To find the price of 100 *articles, when the price of* 1 *is given.*

RULE.—If the price be an aliquot part of a penny, shilling, or pound, divide the quantity thereby, and you have the answer in pence, shillings, or pounds.

If the price be not an aliquot part, for every shilling in the price, reckon £5, to which add 8*s* 4*d* multiplied by the pence for the answer; and for every farthing add 2*s* 1*d*.

EXAMPLE.

What is the price of 100 yards, at 3*d* per yd?

8 4
3

£1 5 0 *Ans.*

Because, 100 articles at 1*d* each = 8*s* 4*d*.

Another method.

RULE.—For every farthing in the price, take as many pence, and twice as many shillings, and their sum will be the value required.

EXAMPLES.

What is the value of 100 oz. at $2\frac{1}{4}d$ per oz?

$2\frac{1}{4}d = 9far.$ which taken as pence = 0 9

$2 \times 9s = 18$ 0

£0 18 9 *Ans.*

Because 100 articles at $\frac{1}{4}d$ each = $2s$ $1d$.

	s	*d*		£	*s*	*d*
100 yards, at	0	7	per yd. *Ans.*	2	18	4
100 ———	5	0	———	25	0	0
100 ———	6	8	———	33	6	8
100 ———	3	4	———	16	13	4
100 ———	1	6	———	7	10	0
100 ———	1	$9\frac{1}{2}$	———	8	19	2
100 ———	2	$4\frac{1}{2}$	———			
100 ———	1	$9\frac{1}{2}$	———			
100 ———	2	6	———			
100 ———	1	$4\frac{1}{2}$	———			
100 ———	5	$2\frac{1}{2}$	———			
100 ———	2	$7\frac{1}{2}$	———			
100 ———	3	4	———			
100 ———	2	$9\frac{1}{4}$	———			
100 ———	9	$3\frac{1}{2}$	———			
100 ———	10	$3\frac{1}{4}$	———			
100 ———	9	$3\frac{1}{4}$	———			
100 ———	3	$6\frac{1}{2}$	———			
100 ———	2	$7\frac{1}{4}$	———			
100 ———	3	$4\frac{1}{2}$	———			
100 ———	3	4	———			

To find the price of a pound at any price per oz.

RULE.—Take the price in farthings as shillings and divide by 3.

EXAMPLES.

What is the price of 1lb of tea at $4\frac{1}{2}d$ per oz.?

$4\frac{1}{2}d = 18far.$ $18 \div 3 = 6s$ *Ans.*

	d		£	s	d
Value of 1lb, at	2	per oz.	0	2	8
———	$1\frac{1}{2}$	———	0	2	0
———	4	———	0	5	4
———	6	———	0	8	0
———	$10\frac{1}{2}$	———	0	14	0
———	15	———	1	0	0
———	$9\frac{3}{4}$	———	0	13	0
———	5s	———	4	0	0

To find the value of an ounce, at any rate per lb.

RULE.—Take the shillings as farthings, and multiply by 3.

EXAMPLES.

What is the cost of an ounce, at 8s per pound.?

8s as farthings $\times 3 = 24$ farthings $= 6d$. *Ans.*

	£	s	d		£	s	d
1 oz, at	0	2	0 per lb.	*Ans.*	0	0	$1\frac{1}{2}$
1 ———	0	3	6 ———	———	0	0	$2\frac{1}{2}$
1 ———	0	6	0 ———	———	0	0	$4\frac{1}{2}$
1 ———	0	12	6 ———	———	0	0	$9\frac{1}{2}$
1 ———	0	15	0 ———	———	0	0	$11\frac{1}{2}$
1 ———	0	18	0 ———	———	0	1	$1\frac{1}{2}$
1 ———	1	0	0 ———	———	0	1	3

When the price is nearly a pound, as 19s 11d 19s $11\frac{1}{4}d$, &c.

RULE.—Proceed as if the price were exactly a pound, and then subtract as many pence or farthings, deficient in the pound, as there are articles in the quantity.

If the price be nearly a shilling, the same operation will bring the answer in shillings.

If the price be above a pound, or a shilling, add instead of subtracting.

If the price be an aliquot part of a pound, a shilling, or a guinea, divide the quantity by such aliquot part, and the quotient will be the answer, in pounds, shillings, or guineas, respectively.

EXAMPLES.

		s	*d*		£	*s*	*d*
21	yds, at	19	6½	*Ans.*	20	10	4½
31	——	6	8	——	10	6	8
33	——	7	0	——	11	11	0
660½	——	6	8	——	220	3	4
296	——	0	11½	——			
409	——	0	10½	——			
296	——	0	6	——			
408	——	0	4	——			
298	——	0	3	——			

To find the price of a 1000 *at any price per* 100, *as tiles, bricks, boards, &c.*

RULE.—If the price be shillings, half the number of shillings per hundred, will be the answer in pounds.

If the price per hundred be pence, annex a cipher, you have at once the answer.

For a farthing add 2½*d*, for a half-penny 5*d*.

EXAMPLES.

	£	*s*	*d*			£	*s*	*d*
1000 at	0	16	0	per hund.	*Ans.*	8	0	0
1000 at	1	16	4	——	——	18	3	4
1000 at	2	10	3	——	——	25	3	6

£	s	d			£	s	d
1000 at 1	9	6	per hund.	*Ans.*	14	15	0
1000 at 0	14	9	———	———	7	7	6
1000 at 1	0	10	———	———	10	8	4
1000 at 0	9	$10\frac{1}{2}$	———	———			
1000 at 0	2	$9\frac{1}{4}$	———	———			
1000 at 1	5	$6\frac{1}{2}$	———	———			
1000 at 1	9	$5\frac{1}{4}$	———	———			
1000 at 2	0	$3\frac{1}{2}$	———	———			
1000 at 1	9	$10\frac{1}{4}$	———	———			
1000 at 0	19	$8\frac{3}{4}$	———	———			
1000 at 0	15	$7\frac{1}{2}$	———	———			
1000 at 0	8	$11\frac{1}{2}$	———	———			
1000 at 0	17	$5\frac{1}{4}$	———	———			
1000 at 0	19	$10\frac{1}{2}$	———	———			
1000 at 1	0	$5\frac{1}{4}$	———	———			
1000 at 0	18	6	———	———			
1000 at 0	9	2	———	———			
1000 at 0	12	5	———	———			
1000 at 0	19	2	———	———			

To find the value of a chaldron, firkin, or barrel, at any price per bushel, quart, or gallon.

RULE.—Three times the number of pence per bushel, will be the value per chaldron, in shillings; and so of quarts, per firkin; and gallons, per barrel.

	d	EXAMPLES.	£	s	d
1 chal.	at 20	per bush. *Ans.*	3	0	0
1 bar.	at 18	per gal. ———	2	14	0
1 fir.	at 10	per quart ———	1	10	0
2 chal.	at 21	per bush. ———	6	6	0
3 bar.	at 16	per gal. ———	7	4	0

When the price is an even number of shillings.

RULE.—Multiply the given quantity by half the number of shillings, doubling the first figure to the right for shillings, and the rest are pounds.

EXAMPLES.

What is the price of 7591 yards, at 4*s* per yd.?

7591
2

£1518 4 *Ans.*

	s	*d*		£	*s*	*d*
3921 yards, at	6	0	per yd. *Ans.*	1176	6	0
2104 ———	8	0	——— ——	841	12	0
3219 ———	10	0	——— ——	1609	10	0
5975 ———	12	0	——— ——	3585	0	0
1891 ———	14	0	——— ——	1323	14	0

To find the value of any number of articles, having the price of 1 *given.*

RULE.—Find the value of the given articles at 1*d* each, and multiply this value by the number of pence in the price for the answer.

If the price be more than one shilling, and less than two, calculate for the number of pence above 12, to which, add as many shillings as there are articles.

If the price be more than two shillings, and less than three, calculate for the number of pence above 2*s*. to which, add twice as many shillings as there are articles, and so on for a greater number of shillings. For a farthing add $\frac{1}{4}$ the quantity, and for a half-penny, $\frac{1}{2}$ the quantity.

This rule is very easy when the number of articles does not exceed 300 or 400, and the price is any even number of pence, not exceeding 2 or 3 shillings.

EXAMPLES.

	s	d		£	s	d
38 yards, at	0	3	per yd. *Ans.*	0	9	6
65 ———	0	5	——— ———	1	7	1
79 ———	0	7	——— ———	2	6	1
94 ———	0	9	——— ———	3	10	6
102 ———	0	10	——— ———	4	5	0
146 ———	0	7	——— ———	4	5	2
210 ———	1	2	——— ———	12	5	2
250 ———	1	5	——— ———	17	14	2
296 ———	1	9	——— ———	25	18	0
400 ———	1	11	——— ———	38	6	8
262 ———	1	6	——— ———	19	13	0
152 ———	0	8	——— ———	5	1	4
164 ———	0	9	——— ———	6	3	0
173 ———	0	10	——— ———	7	4	2
184 ———	0	11	——— ———	8	8	8
190 ———	1	0	——— ———	9	10	0
200 ———	1	1	——— ———	10	16	8
210 ———	1	2	——— ———	12	5	0
223 ———	1	3	——— ———	13	18	9
240 ———	1	4	——— ———	16	0	0
262 ———	1	6	——— ———	19	13	0
270 ———	1	7	——— ———	21	7	6

To find what any number of pence per day will amount to in a year.

RULE.—Take the 365 days as pence, which will be £1 10*s.* 5*d.* and multiply that sum by the

given number of pence, and add 7*s* 7½*d* for every farthing over.

EXAMPLES.

What will 5*d* per day amount to in a year?

£1 10*s* 5*d* × 5 = £7 12*s* 1*d*. *Ans.*

What is 365 days, at 1*s* 2*d* per day?

£1 10*s* 5*d* × 14 = £21 5*s* 10*d*. *Ans.*

Otherwise, by Rule, page 10.

£14 0 0 = amount of 240 days.
½ = 7 0 0 = amount of 120 days.
0 3 10 = 5 times 1*s* 2*d*.

£21 5 10 *Ans.*

What is 365 days, at 4*s* 9½*d* per day?

£57 10 0 = amount of 240
½ = 28 15 0 = amount of 120
1 5 11½ = 5 times 4*s* 9½*d*.

£87 8 11½ *Ans.*

What is 365 days, at 5*s* 11½*d* per day?

Ans. £6 17*s* 0½*d*.

What is 365 days, at 7*s* 11½*d* per day?

What is 365 days, at 12*s* 5½*d* per day?

What is the price of 365 yards, at 9*s* 7½*d* per yard?

What is the value of 365 cwt at 19*s* 6½*d* per cwt?

What is the price of 365 tons, at 17*s* 11½*d* per ton?

Another method to find the value of 365, when the rate of 1 is given.

RULE.—For every penny in the price, add together as many pounds, half-pounds, fourpences, and pence—Thus,

If a person receives 1*s* 4*d* per day, what is the amount for 365 days?

	£	*s*	*d*
For 16 pence, say	£16	0	0
For ½ of 16 ——	8	0	0
For 16 fourpences	0	5	4
For 16 pence	0	1	4
	£24	6	8 *Ans.*

	s	*d*			£	*s*	*d*
365 days, at	1	7	per day	*Ans.*	28	17	11
365 ——	2	8½	——	——	49	8	6½
365 ——	3	7½	——	——	65	15	6½
365 ——	4	5¾	——	——	81	14	10¾
365 ——	5	2	——	——	94	5	10
365 ——	1	3	——	——	22	16	3
365 ——	1	1	——	——	19	15	5

d			£	*s*	*d*
2	per day, for a year	*Ans.*	3	0	10
7	——	——	10	12	11
9	——	——	13	13	9
11	——	——	16	14	7
8	——	——	12	3	4

Omitting Sundays, the year consists of 313 days, which taken as pence, give £1 6*s* 1*d* and for every farthing over, add 6*s* 6½*d*.

Another method to find the amount of* 313 *when the rate of* 1 *is given.

RULE.—For every penny in the price add as many pounds, crowns, shillings, and pence.

EXAMPLES.

Required the amount per year, at 1*s* 6*d* per work-day ?

For 18 pence, say	£18	0	0
For 18 crowns	4	10	0
For 18 shillings	0	18	0
For 18 pence	0	1	6
	£23	9	6 *Ans.*

What is the amount per year, at 2*s* 2*d* per work-day ? *Ans.* £33 18*s.* 2*d.*

What is the amount of 313 yards, at 4*s* 6*d* per yard ? *Ans.* £70 8*s* 6*d.*

What is the value of 313 cwt, at 12*s* 9½*d* per cwt. ? *Ans.* £200 3*s* 9½*d.*

What is the price of 313 lbs, at 4*s* 2*d* per lb. ? *Ans.* £65 4*s* 2*d.*

What will 313 days amount to, at 3*s* 4*d* per day ? *Ans.* £52 3*s* 4*d.*

If a labourer receives 1*s* 9*d* per day, what is his yearly income ? *Ans.* £27 7*s* 9*d.*

	d			£	*s*	*d*
313 days, at	5	per day	*Ans.*	6	10	5
313 ———	7	———	———	9	2	7
313 ———	8	———	———	10	8	8
313 ———	10	———	———	13	0	10
313 ———	11	———	———	14	6	11
313 ———	8½	———	———	11	1	8½

	d		£	*s*	*d*
313 days at	$10\frac{3}{4}$	per day *Ans.*			
313 ———	$9\frac{1}{4}$	——— ———			
313 ———	$2\frac{1}{4}$	——— ———			
313 ———	$11\frac{1}{2}$	——— ———			
313 ———	$9\frac{3}{4}$	——— ———			
313 ———	$11\frac{1}{2}$	——— ———			
313 ———	$7\frac{1}{2}$	——— ———			

If the sum expended per day, be shillings, for 365 days, multiply £18 15*s* by the given number of shillings.

If the year consists of 313 days, multiply £15 13*s* by the given number of shillings.

EXAMPLES.

	s	*d*		£	*s*	*d*
365 days at	8	0 per day	*Ans.*	146	0	0
365 ———	17	0 ———	———	310	5	0
365 ———	7	0 ———	———			
365 ———	5	6 ———	———			
313 ———	2	0 ———	———			
313 ———	4	6 ———	———			

Sometimes the value of a quantity (particularly of a sum of money, in which the pence are 3 or 6) may be found in the following manner.

What is the price of 1271 yards, at 12*s* 6*d* per yard ?

s	*d*	
12	6	
1271		
635	6	for 1271 sixpences
15252	0	for 1271 times 12*s*.
15887	6	= £794 7*s* 6*d*. *Ans.*

When the pence are 6, take $\frac{1}{2}$ the multiplier in shillings; when they are 3, take $\frac{1}{4}$; when $1\frac{1}{2}$, take $\frac{1}{8}$.

When the shillings are 10 or 5, by valuing the first product, we can conveniently extend this principle.

EXAMPLES.

What is the price of 875 yards, at 3*l* 10*s* 3*d* per yard?

£	*s*	*d*	
3	10	3	
		875	
10	18	9	= 875 times 3*d*.
437	10	0	= ——— 10*s*.
2625	0	0	= ——— £3
3073	8	9	*Ans*.

	£	*s*	*d*		£	*s*	*d*
327 yards, at	0	7	6	*Ans*.	122	12	6
245 ———	0	8	6	———	165	7	6
209 ———	7	10	6	———	1572	14	8
838 ———	11	10	3	———	8891	4	6
184 ———	17	15	6	———	3178	12	0

To reduce tons, cwts, qrs, and lbs, into lbs.

RULE.—Multiply the tons reduced to cwts, by 12, and place the product two figures to the right of the multiplicand, to which, add the qrs. and lbs. reduced to lbs. for the answer.

EXAMPLES.

Reduce 14 cwt 1 qr 8 lb, to lbs.

14
168
36

1604 *lbs.* *Ans.*

Reduce 22714 cwt to lbs.

22714
272568

2548968 *lbs.* *Ans.*

Reduce 8976 cwt 1 qr 18 lb to lbs.

8976
107712
46

1005358 *lbs.* *Ans.*

Another Method.

Reduce 16 cwt 1 qr 17 lb to lbs.

16
666
111
45

1837 *lbs.* *Ans.*

In the first method we take 12 times 14, and by placing the figures two spaces to the right, we let the 14 be added in as so many hnndreds.

In the second method we take 111 times 6 and

111 times 1, or 10 and add in these products with the 16, in order to get 112 times 16.

EXAMPLES.

	t.	*c.*	*qr.*	*lb.*	
Reduce	0	14	2	10	to lbs.
———	0	14	1	8	———
———	0	17	3	12	———
———	0	15	3	17	———
———	5	13	2	19	———
———	11	14	1	17	———
———	8	11	3	5	———
———	12	12	2	13	———

When the given quantity is of a higher denomination than the integer of the price, it must be reduced into the denomination of that integer.

EXAMPLES.

Required the value of 21 cwt 2 qr 17 lb, at 8*s* 6*d* per lb.

c.	*qrs.*	*lbs.*	
21	3	17	
252			
101			
2453			
4			
981	4	0	= amount at 8*s*.
61	6	6	= ——— 6*d*.
1042	10	6	*Ans*.

c.	*qr.*	*lb.*		*s*	*d*			£	*s*	*d*
3	1	17	at	0	8⅛	per lb.	*Ans.*	12	17	11½ ½
11	2	0	at	1	7½	———	———	104	13	0
13	1	15	at	2	6	———	———	187	7	6
19	2	16	at	14	3	———	———			
25	1	19	at	12	4	———	———			
10	3	25	at	18	9	———	———			
16	2	10	at	16	6	———	———			

When lbs. are to be valued at shillings per cwt, instead of reducing the lbs into cwts, the valuation may be made, from an assumed amount at 112*s* per cwt, or 1*s* per lb.

EXAMPLES.

Required the amount of 628 lb, at 47*s* per cwt.

	£	*s*	*d*		*s*	*d*	
	31	8	0	amount at	112	0	per cwt.
28 = ¼	7	17	0	———	28	0	———
14 = ⅛	3	18	6	———	14	0	———
3 6 = 1/16	0	19	7½	———	3	6	———
2 0 = 1/28	0	11	2½	———	2	0	———
	13	6	4	———	47	6	———

We here use 628*s* as 31*l* 8*s*.

lb.	£	*s*			£	*s*	*d*
382	at 1	1	per cwt.	*Ans.*	3	11	8
616	at 1	12	———	———	8	16	0
733	at 2	9	———	———	16	0	8
986	at 2	16	———	———			
297	at 1	4	———	———			
205	at 0	16	———	———			
198	at 1	6	———	———			
293	at 0	14	———	———			

To divide a sum of money by 100.

RULE.—Cut off the units and tens of pounds, and the other figures will give the amount in pounds, divide the number of tens and units of pounds by 5, and consider the quotient as so many shillings, reckon the remainder of pounds with half the number of shillings, taking the nearest amount as so many farthings, abating 1, when they exceed 12; and 2, when they exceed 37.

This rule applies also to the division by 1000, cutting off three figures, dividing the hundreds and tens by 5, and reckoning the remaining pounds, taking the nearest amount as farthings, with the same abatement.

This is of great utility in valuations of per centages. The result is generally true to the nearest farthing, which is fully as precise as is ever required in the calculations of business.

EXAMPLES.

Divide 1767*l* 16*s* 4*d* by 100 and 1000.

Ans, £17 13 6¾. and £1 15 4¼.

Here 1700*l* give 17*l*; 67 considered shillings, and divided by 5 give 13*s*, and 2 over with 8 (half the number of shillings) give 28 parts, called 27 farthings or 6¾*d*.

Again 1000*l* give 1*l*; 16*s* divided by 5 give 15*s* and 1 over, with 8 (the nearest number of pounds) give 18 parts, called 17 farthings, or 4¼*d*.

	£	*s*	*d*	
Divide	181	14	10	by 100
——	234	15	6	——

Divide	123	14	5	by 1000
———	4167	19	$7\frac{1}{2}$	———
———	8222	11	$6\frac{1}{4}$	———
———	9767	17	$10\frac{1}{4}$	———
———	9187	17	$2\frac{1}{2}$	———
———	2973	19	$2\frac{1}{4}$	———
———	4187	15	$9\frac{1}{2}$	———

To divide pounds, by any sub-multiple of 960.

RULE.—Divide by the sub-multiple, and estimate the remainder thus, in dividing by 4, what remains is reckoned, as so many times 5*s*.

		s	*d*
by 8	as so many times	2	6
by 16	———	1	3
by 30	———	0	8
by 60	———	0	4
by 120	———	0	2
by 240	———	0	1
by 480	———	0	$0\frac{1}{2}$
by 960	———	0	$0\frac{1}{4}$
by 24	———	0	10
by 40	———	0	6
by 80	———	0	3
by 160	———	0	$1\frac{1}{2}$

Because 8 times 2*s* 6*d*; 16 times 1*s* 3*d*, &c. make £1.

EXAMPLES.

What is the price of 1 yd, when 240 cost 561*l*?

240) 561 (2*l* 6*s* 9*d*. *Ans.*
480

81*d*

What cost 1 cwt, when 960 cost 999*l*. ?

960) 999 (1*l* 0*s* 9$\frac{3}{4}$*d*. *Ans*.
960

39 *far*.

What is the value of 1 yard, when 120 cost 138*l* ?

What is the price of 1 lb when 24 cost 39*l* ?

What is the worth of 1 cwt, when 160 cost 918*l* ?

To divide shillings by any multiple of 12.

RULE—Reckon the shillings as so many pence, and divide by the multiple.

EXAMPLES.

What is the price of 1 yard, when 36 cost 28*l* 10*s* ?

3) 570

190*d*. = 15*s* 10*d*. *Ans*.

What cost 1 cwt, when the price of 48 is 90*l* 18*s*. ?

4) 1818

454$\frac{1}{2}$*d*. = £1 17*s* 10$\frac{1}{2}$*d*.

What is the value of 1 lb, when 60 cost 2*l* 17*s* ?

5) 57

11$\frac{1}{4}$ $\frac{7}{5}$

What is the value of 1 lb, when 24 cost 19*l* 17*s* ?

What is the price of 1 cwt, when 36 cost 129*l* 15*s* ?

What is the price of 1 oz, when 40 cost 1*l* 19*s*?
What is the value of 1 yd, when 84 cost 98*l* 15*s*?

To find the interest of any sum of money for a year, at 5 per cent.

RULE.—Divide the given sum by 20, for the answer in pounds; and for any number of years, multiply the interest of 1 year by the number of years.

For any other rate of interest, to the interest of 5 add to, or subtract from it, such proportional parts, as the excess or deficiency of the given rate, is of 5. Thus, when the interest is $4\frac{3}{4}$, $4\frac{3}{4}$ is less than 5 by $\frac{1}{4}$, and $\frac{1}{4}$ is the 20th part of 5.

When the rate is $4\frac{1}{2}$ per cent, deduct $\frac{1}{10}$th of itself; when 4 per cent, deduct $\frac{1}{5}$ of itself; when $3\frac{1}{2}$ per cent, deduct $\frac{3}{10}$ of itself, &c.

EXAMPLES.

What is the interest of 482*l*, at 5 per cent?

20) 482

£24 2 *Ans.*

£			£	*s*	*d*
982 at 5 per cent, for 1 year.		*Ans.*	49	2	0
1500 at	——	——	75	0	0
2540 at	——	2 years ——	254	0	0
3483 at	——	3 years ——	522	9	0
4696 at	——	4 years ——	939	4	0

What is the interest of 739*l* 10*s*, at $4\frac{3}{4}$ per cent?

£	*s*	*d*	
36	19	6	interest at 5 per cent.
$\frac{1}{20}$ = 1	16	$11\frac{3}{4}$	deduct.
35	2	$6\frac{1}{4}$	*Ans.*

What is the interest of 749*l* 18*s* 11½*d* at 4½ per cent?

£	*s*	*d*	
37	9	11¼	interest at 5 per cent.
1/10 = 3	14	11¾	deduct,
33	14	11½	*Ans.*

£		£ *s* *d*
192 at 4½	per cent.	*Ans.*
298 at 3¼	———	———
498 at 4¾	———	———
596 at 4	———	———

To find the interest of any sum of money, at 5 per cent, for any number of months.

RULE.—Take the pounds as pence, and multiply by the months.

As the interest of any sum of money at 5 per cent, gives 1*s* per pound, for a year, or 1*d* per month, we may, therefore, multiply by the number of months, (reckoning the pounds as pence) or by the number of years (taking the pounds as shillings) instead of the rate per cent.

EXAMPLES.

What is the interest of 240*l*, at 4 per cent, for 8 months?

	£	*s*	*d*	
240*d* =	1	0	0	
			8	
	8	0	0	
1/5 =	1	12	0	deduct.
	6	8	0	*Ans.*

What is the interest of 240*l*, at $5\frac{1}{2}$ per cent, for 8 months?

	£	s	d	
240*d* =	1	0	0	
			8	
	8	0	0	
$\frac{1}{10}$ =	0	16	0	add.
	8	16	0	*Ans.*

What is the interest of 245*l*, at 6 per cent, for 5 months?

	£	s	d	
245*d* =	1	0	5	
			5	
	5	2	1	
$\frac{1}{5}$ =	1	0	5	add.
	6	2	6	*Ans.*

What is the interest of 896*l*, at 5 per cent, for 8 months?

	£	s	d	
896*d* =	3	14	8	
			8	
	29	17	4	*Ans.*

£				£	s	d
200 at	4 per cent for	3	months. *Ans.*	2	0	0
350 at	———	5	——— ———	5	16	8
1200 at	———	11	——— ———			
950 at	———	10	——— ———			

£			£	s	d
420 at $4\frac{1}{2}$ per cent for	9 months.	*Ans.*			
752 at $3\frac{1}{2}$ ———	8 years.	———			
297 at 5 ———	9 ———	———			
397 at ———	5 ———	———			
910 at ———	10 ———	———			

As computations of interest are of great importance in mercantile transactions, it has been thought necessary to give the following useful Table, which will very much facilitate the computation of Simple Interest.

To find the interest of any sum of money from £1 *to* £30000, *for any number of months, weeks, or days, at any rate per cent.*

Year.	*Cal. Month*			*Week.*			*Day.*		
£	£	*s*	*d*	£	*s*	*d*	£	*s*	*d*
1	0	1	8	0	0	$4\frac{1}{2}$	0	0	$0\frac{1}{2}$
2	0	3	4	0	0	9	0	0	$1\frac{1}{2}$
3	0	5	0	0	1	$1\frac{3}{4}$	0	0	2
4	0	6	8	0	1	$6\frac{1}{2}$	0	0	$2\frac{1}{2}$
5	0	8	4	0	1	11	0	0	$3\frac{1}{2}$
6	0	10	0	0	2	$3\frac{3}{4}$	0	0	4
7	0	11	8	0	2	$8\frac{1}{4}$	0	0	$4\frac{1}{2}$
8	0	13	4	0	3	1	0	0	$5\frac{1}{2}$
9	0	15	0	0	3	$5\frac{1}{2}$	0	0	6
10	0	16	8	0	3	$10\frac{1}{2}$	0	0	$6\frac{1}{2}$
20	1	13	4	0	7	$8\frac{1}{2}$	0	1	$1\frac{1}{2}$
30	2	10	0	0	11	$6\frac{1}{2}$	0	1	$7\frac{3}{4}$
40	3	6	8	0	15	$4\frac{1}{2}$	0	2	$2\frac{1}{4}$
50	4	3	4	0	19	$2\frac{3}{4}$	0	2	9

Year.	*Cal. Month.*			*Week.*			*Day.*		
£	£	*s*	*d*	£	*s*	*d*	£	*s*	*d*
60	5	0	0	1	3	$0\frac{3}{4}$	0	3	$3\frac{1}{2}$
70	5	16	8	1	6	11	0	3	10
80	6	13	4	1	10	$9\frac{1}{2}$	0	4	$4\frac{1}{2}$
90	7	10	0	1	14	$7\frac{1}{4}$	0	4	$11\frac{1}{2}$
100	8	6	8	1	18	$5\frac{1}{2}$	0	5	$5\frac{3}{4}$
200	16	13	4	3	16	11	0	10	$11\frac{1}{2}$
300	25	0	0	5	15	$4\frac{1}{2}$	0	16	$5\frac{1}{4}$
400	33	6	8	7	13	10	1	1	11
500	41	13	4	9	12	$3\frac{1}{2}$	1	7	$4\frac{3}{4}$
600	50	0	0	11	10	9	1	12	$10\frac{1}{2}$
700	58	6	8	13	9	$2\frac{3}{4}$	1	18	$4\frac{1}{2}$
800	66	13	4	15	7	$8\frac{1}{4}$	2	3	10
900	75	0	0	17	6	$1\frac{3}{4}$	2	9	$3\frac{3}{4}$
1000	83	6	8	19	4	$7\frac{1}{4}$	2	14	$9\frac{1}{2}$
2000	166	13	4	38	9	$2\frac{3}{4}$	5	9	7
3000	250	0	0	57	13	10	8	4	$4\frac{1}{2}$
4000	333	6	8	76	18	$5\frac{1}{2}$	10	19	2
5000	416	13	4	96	3	$0\frac{3}{4}$	13	13	$11\frac{1}{2}$
6000	500	0	0	115	7	$8\frac{1}{4}$	16	8	9
7000	583	6	8	134	12	$3\frac{1}{2}$	19	3	$6\frac{1}{2}$
8000	666	13	4	153	16	11	21	18	$4\frac{1}{4}$
9000	750	0	0	173	1	$6\frac{1}{4}$	24	13	$1\frac{3}{4}$
10000	833	6	8	192	6	$1\frac{3}{4}$	27	7	$11\frac{1}{4}$
20000	1666	13	4	384	12	$3\frac{1}{2}$	54	15	$10\frac{1}{2}$
30000	2500	0	0	576	18	$5\frac{1}{2}$	82	3	10

USE OF THE PRECEDING TABLE.

To find the interest for any number of months, weeks, or days, at any rate per cent.

RULE.—Multiply the principal by the rate ---

cent. and that product by the number of months, &c., cut off two figures on the right side of the product, and collect from the table the several sums against the different numbers, which will give the interest required.

If the number be for months, add 2*d* for every 10 cut off; for weeks, add $\frac{1}{2}d$ for every 10 cut off; if for days, add $\frac{1}{4}d$ for every 40 cut off.

EXAMPLES.

What is the interest of 1357*l* 10*s* for 10 months at 4 per cent?

£	*s*
1357	10
	4
5430	0
	10
543,00	0

	£	*s*	*d*
500 =	41	13	4
40 =	3	6	8
3 =	0	5	0
	45	5	0

What is the interest of 1411*l* 5*s* for 8 weeks, at 5 per cent?

£	*s*
1411	5
	5
7056	5
	8
564,50	0

	£	*s*	*d*
500 =	9	12	$3\frac{1}{2}$
60 =	1	3	$0\frac{2}{4}$
4 =	0	1	$6\frac{1}{2}$
50 =	0	0	$2\frac{1}{2}$
	10	17	$1\frac{1}{2}$

What is the interest of 2011*l* 10*s* for 60 days, at 6 per cent?

£	*s*
2011	10
	6
12069	0
	60
7241,40	0

£	*s*	*d*
7000 = 19	3	$6\frac{1}{2}$
200 = 0	10	$11\frac{1}{2}$
40 = 0	2	$2\frac{1}{4}$
1 = 0	0	$0\frac{1}{2}$
·40 = 0	0	$0\frac{1}{4}$
19	16	9

To find what an estate of £1 *to* £60000 *per annum, will come to per day.*

RULE.—Collect the annual income or rent, from the table for 1 year, against which, take the several sums for 1 day, add them together, and the sum will be the answer.

EXAMPLES.

An estate of 376*l* per annum, what is that per day?

£	*s*	*d*
300 = 0	16	$5\frac{1}{4}$
70 = 0	3	10
6 = 0	0	4
1	0	$7\frac{1}{4}$

To find the amount of any income, salary, or servants' wages, for any number of months, weeks, or days.

RULE.—Multiply the yearly income or salary, by the number of months, weeks, or days, and collect the product from the table.

EXAMPLES.

What will 270*l* per annum come to for 11 months, for 3 weeks, and for 6 days?

		£	*s*	*d*
270	2000 =	166	13	4
11.	900 =	75	0	0
2970	70 =	5	16	8
		247	10	0 = 11 months.

For 3 weeks.

		£	*s*	*d*
270	800 =	15	7	$8\frac{1}{4}$
3	10 =	0	3	10
810		15	11	$6\frac{1}{2}$

For 6 days.

		£	*s*	*d*
270	1000 =	2	14	$9\frac{1}{2}$
6	600 =	1	12	$10\frac{1}{2}$
1620	20 =	0	1	$1\frac{1}{4}$
		4	8	$9\frac{1}{4}$

For the whole time.

£	*s*	*d*
247	10	0
15	11	$6\frac{1}{2}$
4	8	$9\frac{1}{4}$
267	10	$3\frac{3}{4}$

What is the interest of 2467*l* 10*s* for 10 months at 4 per cent? *Ans.* £82 5*s*.

What is the interest of 2467*l* 10*s* for 12 weeks, at 5 per cent? *Ans.* £28 9*s* 5*d*.

What is the interest of 2467*l* 10*s* for 59 days, at 6 per cent? *Ans.* £20 5*s* 7*d*.

What will 980*l* per annum come to for 9 months, for 2 weeks, and for 5 days?

	£	*s*	*d*	
Ans.	735	0	0	for 9 months.
	37	13	10	for 2 weeks.
	13	8	$5\frac{3}{4}$	for 5 days.

A gentleman has an estate worth 987*l* per annum, what is that per day? *Ans.* £2 14*s* $0\frac{3}{4}d$.

If a gentleman's expenditure is 296*l* per annum, what is that per day? *Ans.* 16*s* $2\frac{3}{4}d$.

What is the interest of 810*l* for 30 weeks, at $4\frac{1}{2}$ per cent? *Ans.* £21 0*s* 7*d*.

How much will 250*l* produce, at 5 per cent, for 320 days? *Ans.* £10 19*s* 2*d*.

The following is a Table for finding the number of days, between a given day of one month, and any day of another month in the same year.

Note. If the days required include the latter part of February in leap year, one is to be added to the number in the table.

Days	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
1	1	32	60	91	121	152	182	213	244	274	305	335
2	2	33	61	92	122	153	183	214	245	275	306	336
3	3	34	62	93	123	154	184	215	246	276	307	337
4	4	35	63	94	124	155	185	216	247	277	308	338
5	5	36	64	95	125	156	186	217	248	278	309	339
6	6	37	65	96	126	157	187	218	249	279	310	340
7	7	38	66	97	127	158	188	219	250	280	311	341
8	8	39	67	98	128	159	189	220	251	281	312	342
9	9	40	68	99	129	160	190	221	252	282	313	343
10	10	41	69	100	130	161	191	222	253	283	314	344
11	11	42	70	101	131	162	192	223	254	284	315	345
12	12	43	71	102	132	163	193	224	255	285	316	346
13	13	44	72	103	133	164	194	225	256	286	317	347
14	14	45	73	104	134	165	195	226	257	287	318	348
15	15	46	74	105	135	166	196	227	258	288	319	349
16	16	47	75	106	136	167	197	228	259	289	320	350
17	17	48	76	107	137	168	198	229	260	290	321	351
18	18	49	77	108	138	169	199	230	261	291	322	352
19	19	50	78	109	139	170	200	231	262	292	323	353
20	20	51	79	110	140	171	201	232	263	293	324	354
21	21	52	80	111	141	172	202	233	264	294	325	355
22	22	53	81	112	142	173	203	234	265	295	326	356
23	23	54	82	113	143	174	204	235	266	296	327	357
24	24	55	83	114	144	175	205	236	267	297	328	358
25	25	56	84	115	145	176	206	237	268	298	329	359
26	26	57	85	116	146	177	207	238	269	299	330	360
27	27	58	86	117	147	178	208	239	270	300	331	361
28	28	59	87	118	148	179	209	240	271	301	332	362
29	29		88	119	149	180	210	241	272	302	333	363
30	30		89	120	150	181	211	242	273	303	334	364
31	31		90		151		212	243		304		365

USE OF THE TABLE.

1. *To find the number of days, from the first of January, to any given day of any month within the year.*

Find the given day in the first column, and against which, in the column under the given month, is the number required. Thus,

From the 1st of January to the 8th of August is 220 days; to the 24th of November is 328 days, &c.

2. *To know the number of days that are from any given day of a month to the end of the year;* suppose from the 29th of September.

Find the number of days up to the 29th of September as before, (viz. 272) which, subtracted from 365, leaves 93 for the number required.

3. *To find the number of days between the given day of any month, in the same year;* suppose from the 20th of March, to the 24th of August following.

Find the number answering to the 24th of August, (viz. 236) from which subtract the number answering to the 20th of March (79) there remains 157 the number required.

4. *To find the number of days from a given day of one month, to the given day of another month in the next year;* suppose from the 10th of October, to the 6th of April in the following year.

From the days of a year, subtract the number answering to the first date (viz. 10th of October

283 days) there remains 82, to which add the number answering to the 6th of April (viz. 96 days) gives 178 for the days required.

And thus is the number of days readily found, for any interval of time given, in the same year completely; or which is part of one, and part of another year.

EXAMPLES.

Required the number of days from January 1st to August 20th? *Ans.* 232 *days.*

How many days are there between May the 9th and November the 5th? *Ans.* 180 *days.*

How many days are there from November *12th* in one year, to June 26th in the next?

Ans. 226 *days.*

Required the number of days, from January 20th, 1820, to September 19th. *Ans.* 243 *days.*

What is the interest due upon a bond of 650*l* from January 7th, to September 12th, 1834, at 4 per cent per annum?

By the table the number of days is 248.

		£	*s*	*d*
650	6000 =	16	8	9
4	400 =	1	1	11
	40 =	0	2	$2\frac{1}{2}$
2600	8 =	0	0	$5\frac{1}{4}$
248				
		17	13	$3\frac{1}{2}$
1488				
496				
6448,00				

What is the interest of 954*l* from the 1st of June 1834, to the 9th of March following, at 5 per cent per annum?

By the table the number of days is 281.

		£	*s*	*d*
954	10000 =	27	7	$11\frac{1}{4}$
5	3000 =	8	4	$4\frac{1}{2}$
4770	400 =	1	1	11
281	3 =	0	0	2
477	·70 =	0	0	$0\frac{1}{2}$
3816		36	14	$5\frac{1}{4}$
954				
13403,70				

What is the interest of 112*l* 12*s* 6*d* from the 8th of May 1834 to the 3rd of November, at 4 per cent per annum?

£	*s*	*d*		£	*s*	*d*
112	12	6	800 =	2	3	10
		4	6 =	0	0	4
450	10	0	·39½ =	0	0	$0\frac{1}{2}$
179				2	4	$2\frac{1}{4}$
4050						
3150						
450						
89½						
806,39½						

What is the interest of 810*l* for 30 weeks, at 4½ per cent? *Ans.* £21 0*s* 6¾*d*.

What is the interest of 1000 guineas for 342 days, at 5 per cent? *Ans.* £49 3*s* 10*d*.

What is the interest of 300*l* at 4½ per cent, for 160 days? *Ans.* £5 18*s* 4¼*d*.

What is the interest of 1500*l* for a year and 20 weeks, at 5 per cent? *Ans.* £103 16*s* 10¾*d*.

What is the interest of 540*l* 10*s* from January 1st, 1835, to September 2nd in the same year, at 4 per cent per annum? *Ans.* £10 7*s* 1¼*d*.

Abbreviated Multiplication and Division.

It is necessary to the full comprehension of the science of arithmetic, that it be taught on general principles, which apply to all cases, but the practical arithmetician often finds shorter methods of obtaining particular results, and as the end of arithmetic is despatch, they deserve attention; the learner ought always to become acquainted with these concise methods of operation, they may occasion a little embarrassment at first, but difficulties of this kind are soon overcome, and amply compensated by the saving of time: some of these methods are very obvious, as for instance the following.

To multiply by two figures when one of them is a unit.

RULE.—Multiply by the number above unity; and place the product one figure to the right or left according as the unit is before or after.

EXAMPLES.

Multiply 6375 by 17.

6375 = 10 times 6375
44625 = 7 times 6375

108375

Multiply 7462 by 21.

7462
14924 = 20 times 7462.

156702

Multiply 4272 by 21, 41, 61, and 81.
Multiply 3067 by 13, 17, 19, and 16.
Multiply 2142 by 14, 15, 16, and 18.
Multiply 3343 by 31, 51, 71, and 91.

Another method for any number between 10 *and* 20.

RULE.—Multiply by the unit figure, and add the figure of the multiplicand, which stands next to the right, to the product of each figure as you proceed.

EXAMPLES.

Multiply 65428 by 16.

65428
16

1046848

Multiply 29475 by 18.
Multiply 47629 by 14.

When the multiplicand is nearly 100, 1000, 10000, *or* 100000.

RULE.—Annex the ciphers to the multiplicand, and add or subtract the difference.

EXAMPLES.

Multiply 6247 by 99 and 997.

624700	6247000
6247	18741
618453	6228259

Multiply 8365 by 1003 and 10012.

8365000	83650000
25095	100380
8390095	83750380

Multiply 98265 by 997 and 104.

Multiply 33517 by 98 and 999.

Multiply 2963 by 112 and 108.

Multiply 4598 by 1005 and 1012.

When the multiplier is nearly equal to, but less than a number consisting of a digit with ciphers on its right.

RULE.—Multiply by that number, and also by its digit above the given multiplier, and then subtract the latter product from the former.

EXAMPLES.

Multiply 5748 by 199 and 298.

5748	5748
200	300
1149600	1724400
5748	11496
1143852	1712904

Multiply 7289 by 999 and 9992.
Multiply 9235 by 795 and 997.

To multiply by any power of 5.

RULE.—To the given multiplicand, add as many ciphers as there are units in the index of the given power of 5, and divide the result by the same power of 2.

EXAMPLES.

Multiply 27984 by 5 and 25.

2) 279840 — 139920

4) 2798400 — 699600

Multiply 384729 by 125 and 625.

8) 384729000 — 48091125

16) 384729000 — 24045625

Multiply 2496 by 25 and 125.

To divide by any number of nines.

RULE.—Under the dividend place it over again, as many places more to the right as there are nines; under this, place it again as many more places to the right, and so on; then add these lines, and from the right of the same, cut off as many figures as there are nines, for the remainder, the rest is the quotient, but the carriage from the left of the remainder, must be added to the right, and if the remainder be all nines, make it nothing.

EXAMPLES.

Divide 739428647 by 999.

739428647
739428
739

Quotient 740168,814
1

815 remainder.

Divide 6539482 by 9999.

6539482
653

Quotient 654,0135
1

136 remainder.

Divide 7538324616 by 99999.

7538324616
75383

Quotient 75383,99999 remainder.
Ans. 75384.

When the divisor is 5, 15, 35, 45, *or* 55.

RULE.—Double the dividend, and divide the result by 10, 30, 70, 90, or 100 respectively for ... nt.

EXAMPLES.

Divide 2795 by 15.

2795
2

3,0) 5590

186⅓

Divide 986258 by 35.

986258
2

7,0) 197251,6

28178⅘

Divide 473625 by 5.

473625
2

94725,0

Divide 875149 by 25. *Ans.* 35005⅘.
Divide 986258 by 35. *Ans.* 28178⅘.

THE END.

CONTENTS.

PAGE.

To find the value of 12 articles,..... 1
To find the price of 1 article, at any price per doz, ... 2
To find the price of any multiple of 12, ... 3
To find the price, when the quantity is nearly a doz. or some multiple of a doz, ... 4
To find the price, when the quantity is not easily reducible to dozens,..... 5
To find the value of any number of grosses,.. 6
To find the value of 20 articles, ... 7
To find the value of 1 article, when the price of 20 is given,..... 8
To find the value of any multiple of 20, ... 9
To find the value of 240 articles, ... 10
To find the value of any multiple of 240,.... 12
To find the value of any number, when the excess, or defect is an aliquot part of 240 13
To find the price of 1 cwt, or 112 articles, .. 14
To find the price of 20 cwt, or a ton, ... 17
To find the value of any cwts, qrs, and lbs,.. 18
To find the price of 100 articles, ... 19
To find the price of a lb, at any rate per cwt, . 20

To find the value of an oz, at any price per lb, 21
To find the price of any quantity, when the price is nearly a pound or a shilling, .. 21
To find the price of 1000 articles, at any price per 100, ... 22
To find the value of a chaldron, firkin, or barrel, at any price per bush. quart, or gal. 23
To find the value when the price is an even number of shillings, ... 24
To find the value of any number of articles,.. 24
To find the amount per year, at any rate per day, ... 26
To reduce tons, cwts, and lbs. into lbs. 30
To divide any sum by 100 or 1000, ... 34
To divide pounds by any sub-multiple of 960, 35
To divide shillings by any multiple of 12, ... 36
To find the interest of any sum for a year, .. 37
To find the interest for months, ... 38
A general table for calculating interests, rents, incomes, and servants' wages, ... 40
To find the interest for months, weeks, or days,..... 41
To find what any sum per annum will come to per day, ... 43
To find the amount of any income for months, weeks, or days, ... 43
A table exhibiting the number of days between two given periods, ... 46
Use of the table, ... 47

Abbreviated Multiplication and Division,.... 50
To multiply by two figures, when one of them is a unit, ... 50
Another method for any number between 10 and 20, ... 51
When the multiplier is nearly equal to, but less than a number consisting of a digit with ciphers on its right, ... 52
To multiply by any power of 5, ... 53
To divide by any number of nines, ... 53
To divide when the divisor is 5, 15, 35, 45, or 55, ... 54

FINIS.

Printed by M. SMITH, 39, Bondgate, Alnwick.

ERRATA.

		£	s	d
Page 5, line 7, from bottom,	read *Ans.*	0	16	3
5, last line,	read *Ans.*	3	8	8¼
6, line 6, from bottom,	read *Ans.*	1	10	0
9, first line	read *Ans.*	0	3	6½
13, line 7, from bottom,	read *Ans.*	32	7	6
14, first line	read *Ans.*	31	5	0
14, line 9, from bottom,	114gs =	119	14	0
16, line 5, from bottom,	read *Ans.*	10	14	8
22, last line,	read *Ans.*	25	2	6
26, line 11, from top,	read	0	5	10
26, line 16, from top	read	1	3	11½
26, line 19, from top,	*Ans.*	108	14	9¼
29, line 9, from top,	read	18	5	0
30, line 9, from bottom,	read	0	13	6
30, line 8, from bottom,	*Ans.*	1572	14	6
30, line 6, from bottom,	read	17	5	6
33, line 6, from bottom,	read *Ans.*	3	11	7½
33, line 8, from bottom,	read *Ans.*	16	0	8¼